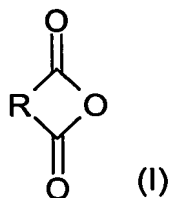


Claims

1. Process for preparing a coated metal sheet coil comprising the following steps:
 - (1) decolling of the coiled metal sheet;
 - 5 (2) coating the metal sheet with a curable composition comprising an (meth)acrylated oligomer which is the reaction product of a carboxyl functionalized polybutadiene comprising x equivalents of -COOH groups with
 - (i) y equivalents of one or more (meth)acrylated monoepoxides or
 - (ii) a mixture of z equivalents of one or more polyepoxides and at least $(z - x)$ equivalents of
 - 10 an α, β -unsaturated carboxylic acid ; with $z > x$ and $y \geq x$;
 - (3) curing the composition ; and
 - (4) recoiling the coated metal sheet.
2. Process according to claim 1, wherein the carboxyl functionalized polybutadiene is the reaction product of a hydroxyl-terminated polybutadiene with a
 - 15 cyclic anhydride responding to the general formula (I) :



wherein R represents arylene, cycloalkylene, alkylene or alkenylene group, it being possible for R to bear alkyl, alkenyl groups, a -COOH group and/or another anhydride group.

3. Process according to claim 2, wherein the anhydride is phthalic anhydride or dodecenylsuccinic anhydride.
4. Process according to any of claims 1 to 3, wherein the (meth)acrylated oligomer is the reaction product of a carboxyl functionalized polybutadiene comprising x equivalents of -COOH groups with y equivalents of one or more (meth)acrylated mono-
 - 25 epoxides, y being equal to x.
- 5. Process according to any of claims 1 to 4, wherein the (meth)acrylated monoepoxide is chosen from glycidylacrylate and glycidylmethacrylate.
- 6. Process according to any of claims 1 to 3, wherein the (meth)acrylated oligomer is the reaction is the reaction product of a carboxyl functionalized polybutadiene
 - 30 comprising x equivalents of -COOH groups with z equivalents of at least one polyepoxide and $(z - x)$ equivalents of at least one α, β -unsaturated carboxylic acid.
- 7. Process according to claim 6, wherein z is greater than $2x$.

8. Process according to claim 6 or 7, wherein α,β -unsaturated carboxylic acid is chosen from acrylic and methacrylic acid.
9. Process according to any of claims 1 to 3 or 6 to 8, wherein the polyepoxide is chosen from diglycidylethers of aromatic or aliphatic diols or cycloaliphatic diepoxides.
- 5 10. Process according to claim 9, wherein the polyepoxide is chosen from diglycidyl ether of bisphenol-A, diglycidylether of poly(ethylene oxide-co-propylene oxide), diglycidylether of polypropylene oxide and diglycidylether of butanediol.
11. Process according to any of claims 1 to 3 or 6 to 10, wherein the (meth)acrylated oligomer is prepared by adding the α,β unsaturated carboxylic acid to
- 10 the carboxyl functionalized polybutadiene before or at the latest at the same time as the polyepoxide.
12. Process according to any of claims 1 to 11 wherein the (meth)acrylated oligomer is obtained by the reaction of the carboxyl functionalised polybutadiene and the mono- or polyepoxide in the presence of at least one non reactive diluent chosen
- 15 from mono- or polyfunctional (meth)acrylate monomers.
13. Process according to claim 12, wherein the non reactive diluent is chosen from phenoxyethyl acrylate, isobornyl acrylate, n-butyl acryloyloxy ethyl carbamate and their mixtures.
14. Process according to any of claims 1 to 13, wherein the curable composition
- 20 comprises :
- from 8 % to 50 % by weight of (meth)acrylated oligomer,
 - from 0 to 65 % by weight of non-reactive diluent,
 - from 0 to 60 % by weight of additional diluent chosen from copolymerizable ethylenically unsaturated monomers,
 - 25 • from 0.01 to 60 % by weight of (meth)acrylated polyepoxide,
 - from 0.01 to 5 % by weight of photoinitiator or chemical initiator, and
 - from 0 to 20 % by weight of adhesion promoter.
15. Process according to any of claims 1 to 14, wherein the curing is done by electron beam or UV-radiation.